

## Creation of binary tree using linked list

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### SOLUTION-1

#### INPUT:

```
#include<stdio.h>
#include<stdlib.h>
struct node
{
    struct node *left;
    int data;
    struct node *right;
};
struct node *create()
{
    int info;
    struct node *nn;
    nn=(struct node *)malloc(sizeof(struct node));
    printf("\n\t\tenter data : ");
    scanf("%d",&info);
    nn->data=info;
    nn->left=NULL;
    nn->right=NULL;
    int choice;
    printf("\n\tpress 1 if %d has left node else 0 :",nn->data);
    scanf("%d",&choice);
    if(choice)
    {
        nn->left=create();
    }
    printf("\n\tpress 1 if %d has right node else 0 :",nn->data);
    scanf("%d",&choice);
    if(choice)
    {
        nn->right=create();
    }
    return nn;
}
int inorder(struct node *root)
{
    if(root==NULL)
        return 0;
```

```

else
{
    inorder(root->left);
    printf("\nroot data : %d ",root->data);
    inorder(root->right);
}
}
int main()
{
    struct node *root;
    root=create();
    printf("\ninorder traversal ");
    inorder(root);
}

```

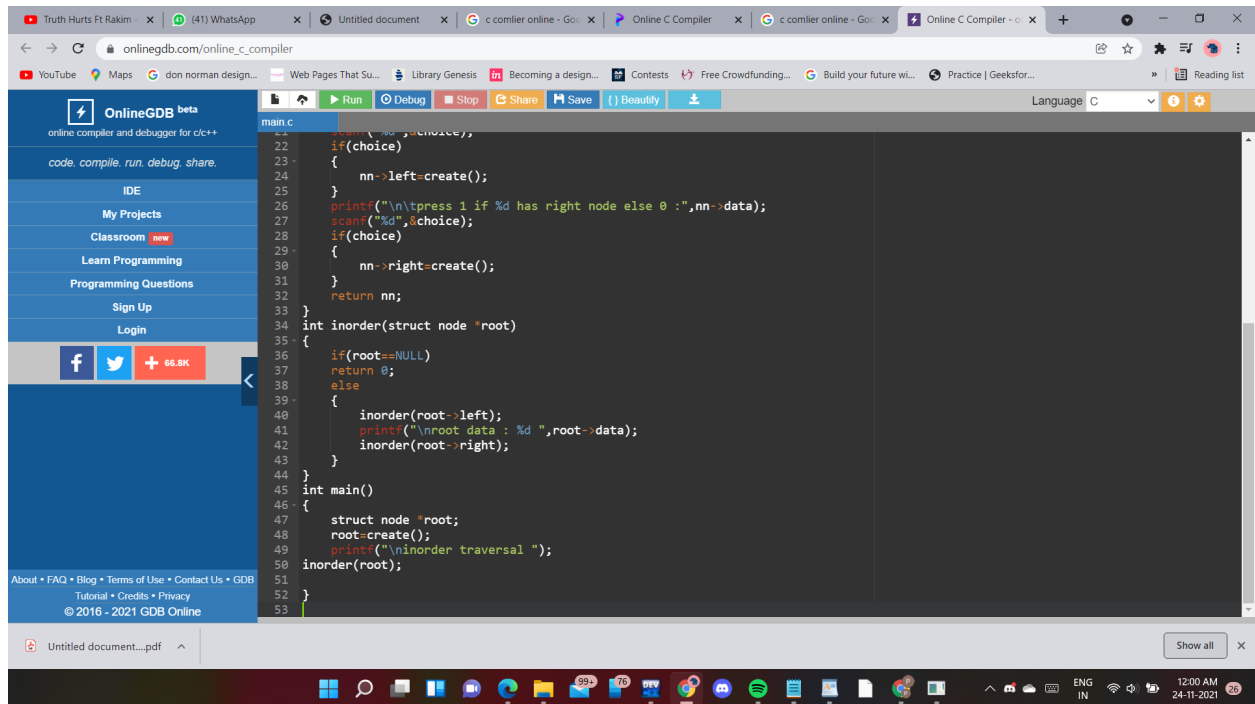
The screenshot shows the OnlineGDB web IDE interface. The main editor displays the following C code:

```

1 #include<stdio.h>
2 #include<stdlib.h>
3 struct node
4 {
5     struct node *left;
6     int data;
7     struct node *right;
8 };
9 struct node *create()
10 {
11     int info;
12     struct node *nn;
13     nn=(struct node *)malloc(sizeof(struct node));
14     printf("\nEnter data : ");
15     scanf("%d",&info);
16     nn->data=info;
17     nn->left=NULL;
18     nn->right=NULL;
19     int choice;
20     printf("\n\tpress 1 if %d has left node else 0 : ",nn->data);
21     scanf("%d",&choice);
22     if(choice)
23     {
24         nn->left=create();
25     }
26     printf("\n\tpress 1 if %d has right node else 0 : ",nn->data);
27     scanf("%d",&choice);
28     if(choice)
29     {
30         nn->right=create();
31     }
32     return nn;
33 }

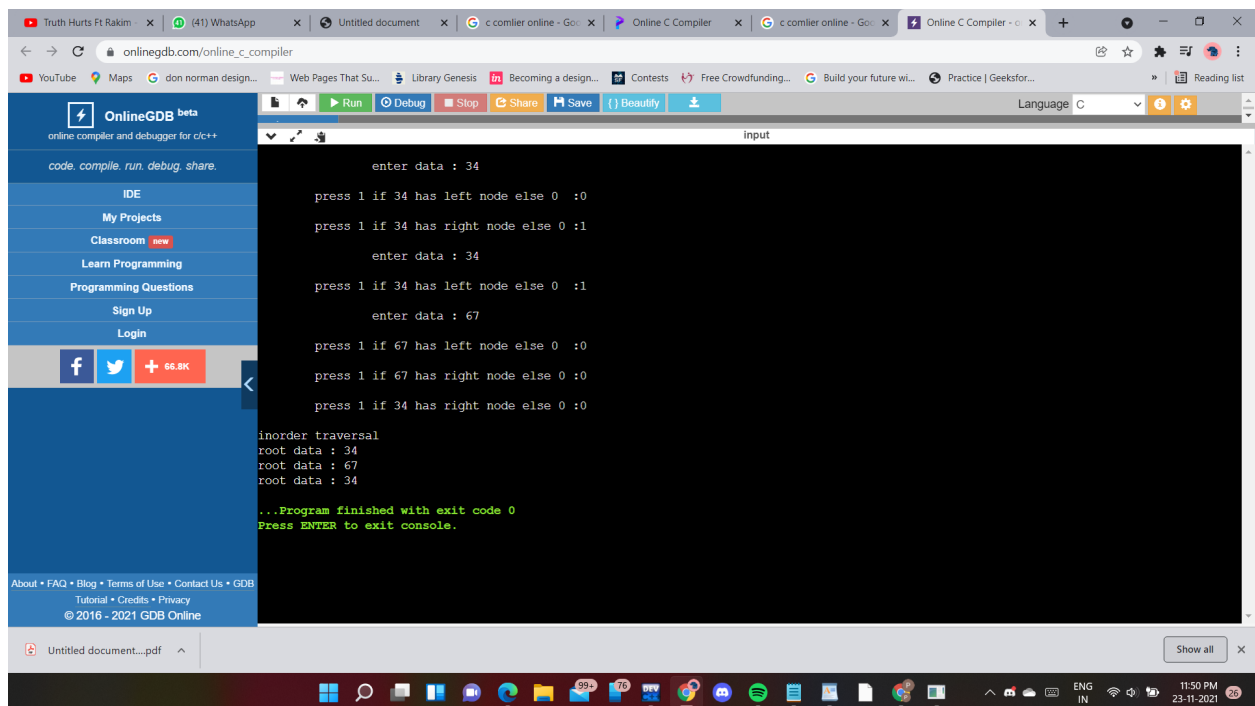
```

The interface includes a sidebar on the left with links like "OnlineGDB beta", "code, compile, run, debug, share.", "IDE", "My Projects", "Classroom", "Learn Programming", "Programming Questions", "Sign Up", and "Login". The bottom status bar shows the file name "Untitled document...pdf" and a "Show all" button.



```
main.c
21 struct node *create(int choice);
22 if(choice)
23 {
24     nn->left=create();
25 }
26 printf("\n\tpress 1 if %d has right node else 0 :",nn->data);
27 scanf("%d",&choice);
28 if(choice)
29 {
30     nn->right=create();
31 }
32 return nn;
33 }
34 int inorder(struct node *root)
35 {
36     if(root==NULL)
37         return 0;
38     else
39     {
40         inorder(root->left);
41         printf("\nroot data : %d ",root->data);
42         inorder(root->right);
43     }
44 }
45 int main()
46 {
47     struct node *root;
48     root=create();
49     printf("\ninorder traversal ");
50     inorder(root);
51 }
52
53
```

## OUTPUT:



```
input
enter data : 34
press 1 if 34 has left node else 0 : 0
press 1 if 34 has right node else 0 : 1
enter data : 34
press 1 if 34 has left node else 0 : 1
enter data : 67
press 1 if 67 has left node else 0 : 0
press 1 if 67 has right node else 0 : 0
press 1 if 34 has right node else 0 : 0
inorder traversal
root data : 34
root data : 67
root data : 34
...Program finished with exit code 0
Press ENTER to exit console.
```

## SOLUTION-2

## INPUT:

```

#include<stdio.h>
#include<stdlib.h>

struct tree
{
    int data;
    struct tree *left;
    struct tree *right;
};
typedef struct tree bt;

bt *node;

void postorder();
void preorder();
void inorder();
bt* create(bt *node, int data)
{
    if(node==NULL)
    {
        bt *temp;
        temp=(bt*)malloc(sizeof(bt));
        temp->data=data;
        temp->left=temp->right=NULL;
        return temp;
    }
    if(data<(node->data))
    {
        node->left=create(node->left, data);
    }
    else if(data>node->data)
    {
        node->right=create(node->right,data);
    }
    return node;
}

void preorder(bt *node){
    if(node!=NULL){
        printf("%d\t", node->data);
        preorder(node->left);
        preorder(node->right);
    }
}

```

```

void postorder(bt *node){
    if(node!=NULL){
        postorder(node->left);
        postorder(node->right);
        printf("%d\t", node->data);
    }
}

```

```

void inorder(bt *node)
{
    if(node != NULL)
    {
        inorder(node->left);
        printf("%d\t", node->data);
        inorder(node->right);
    }
}

```

```

int main()
{
    int data, ch,i,n;
    bt *root=NULL;
    printf("\n Enter the number of
nodes i.e. n \n"); scanf("%d",&n);
    printf("\n Enter the values\n");
    for(i=1;i<=n;i++)
    {
        scanf("%d",&data);
        root=create(root,data);
    }
    printf("\n PRE-ORDER Traversal :\n");
    preorder(root);
    printf("\n IN-ORDER Traversal :\n");
    inorder(root);
    printf("\n POST-ORDER Traversal :\n");
    postorder(root);
}

```

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main.c

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 struct tree
4 {
5     int data;
6     struct tree *left;
7     struct tree *right;
8 };
9 typedef struct tree bt;
10 bt *node;
11 void postorder();
12 void preorder();
13 void inorder();
14 bt *create(bt *node, int data)
15 {
16     if(node==NULL)
17     {
18         bt *temp;
19         temp=(bt*)malloc(sizeof(bt));
20         temp->data=data;
21         temp->left=temp->right=NULL;
22         return temp;
23     }
24     if(data < (node->data))
25     {
26         node->left=create(node->left, data);
27     }
28     else if(data > node->data)
29     {
30         node->right=create(node->right, data);
31     }
32     return node;
33 }
```

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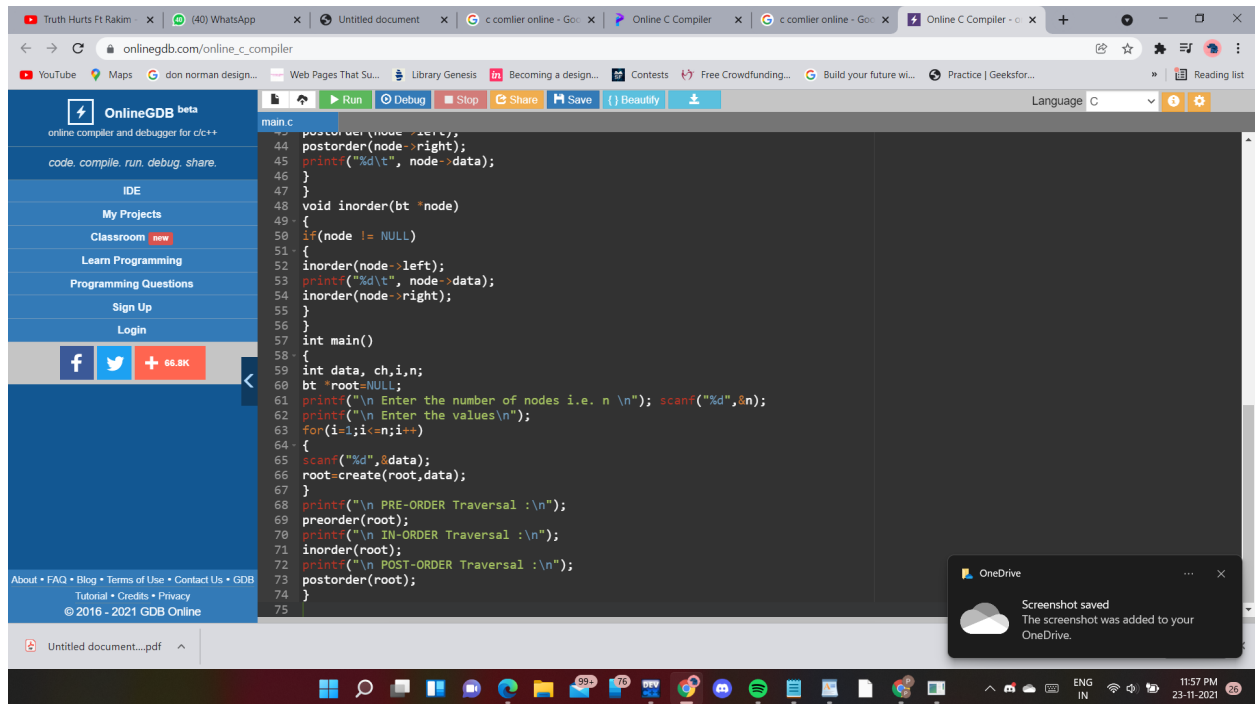
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main.c

```
30 node->right=create(node->right, data);
31 }
32 return node;
33 }
34 void preorder(bt *node){
35     if(node!=NULL){
36         printf("%d\t", node->data);
37         preorder(node->left);
38         preorder(node->right);
39     }
40 }
41 void postorder(bt *node){
42     if(node!=NULL){
43         postorder(node->left);
44         postorder(node->right);
45         printf("%d\t", node->data);
46     }
47 }
48 void inorder(bt *node)
49 {
50     if(node != NULL)
51     {
52         inorder(node->left);
53         printf("%d\t", node->data);
54         inorder(node->right);
55     }
56 }
57 int main()
58 {
59     int data, ch,i,n;
60     bt *root=NULL;
61     printf("\n Enter the number of nodes i.e. n \n"); scanf("%d",&n);
```

OneDrive  
Screenshot saved  
The screenshot was added to your OneDrive.



## OUTPUT:

